

June 26, 2015

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Dear Julie:

Thank you for all of your hard work over the past few months in working with stakeholders, such as the irrigation industry, in updating the Model Water Efficient Landscape Ordinance. The task you face is not an easy one. The irrigation industry remains committed to working with you, your colleagues at the Department of Water Resources, Governor Brown's administration and the California legislature to ensure that the updated MWELO not only promotes water conservation, but also embraces innovation, best practices, smart irrigation management and good consumer habits that will hopefully be the "new norm," even when post-drought conditions return.

Our comments regarding the June 12, 2015, public draft of the Model Water Efficient Landscape Ordinance are below. We feel that these suggested changes to the MWELO will achieve the goals set forth by Governor Brown on April 1, 2015, and AB 1881. California is at the forefront of irrigation innovation. Through continued research and development, manufacturing, testing and use, we are confident that effective irrigation technologies and management play essential roles in both long-term and short-term solutions to California's water crisis. Our comments reflect the best ways to embrace irrigation technologies and management to conserve water, while maximizing the benefits of California's landscapes.

### **Precipitation Rate Requirement**

On page 16 of the MWELO draft, section "(M)" states, "the irrigation system must be designed and installed in such a manner that a precipitation rate of 1.0 inches per hour is not exceeded in any portion of the landscape."

The Irrigation Association believes that any requirement of precipitation rate for irrigation emitters is not necessary and, if employed as part of the MWELO, will have unintended detrimental effects to the efficiency of the irrigation system.

For example: for larger turf areas such as parks, sports fields or golf courses, the method for achieving matched precipitation rate is to use the same nozzle (same flow rate and distance of throw) for each arc, but the 180-degree sprinklers will run for half the time as the full circle sprinklers. So while the nozzle in full-circle application may be below one-inch per hour, the half-circle sprinkler will have an application rate exceeding the proposed maximum precipitation rate. The quarter-circle sprinklers will be twice the precipitation rate as the half-circle nozzles because it is covering a smaller area. Run time for each arc is used to achieve a matched precipitation rate; 40 minutes for full-circle, 20 minutes for half-circle and 10 minutes for quarter-

circle sprinklers. Sprinklers with similar arcs are put together on a valve and it works very efficiently. This is done differently for smaller nozzles used in residential properties where all arcs can be put together on the same valve, because the flow rate is proportional for the area covered.

Could we figure out how to design and install sprinklers for larger turf areas using multiple types of sprinklers and nozzles? Yes, but efficiency will likely decrease and those who maintain the sprinkler systems will be frustrated because it makes very little sense.

A goal of the MWELo is to prohibit any runoff and overspray in the landscape. DWR states this goal in several sections throughout the draft MWELo, and it is a concept that the Irrigation Association wholly supports. Proper design and equipment selection results in the elimination of overspray. Eliminating runoff is achieved by using the precipitation rate to develop the correct run time for proper irrigation scheduling and management.

While precipitation rate is a good measure of the rate at which water is applied to landscape plant material, limiting precipitation rate will have no effect on overspray or runoff. The following factors, some of which the MWELo already addresses, will have much better results in eliminating runoff and overspray:

- the irrigation design (placement, spacing, pressure, etc.);
- the types of plants (turfgrass, trees, shrubs) that are being irrigated;
- the design of the landscape being irrigated (location of the trees and shrubs, etc.);
- the type of soil being irrigated (sandy soils need a higher precipitation rate to ensure plants receive the correct amount of water in a given amount of time);
- the run times of the different zones of the irrigation system; and
- enforcing no runoff regulations.

Through limiting the precipitation rate to 1.0 inches per hour, the MWELo hinders past, current and future innovation on irrigation technologies through unnecessary regulation. Irrigation technologies are light-years from where they were 10 years ago and will be even better 10 years from now. Handcuffing all future irrigation emitters to a precipitation rate of 1.0 inches per hour will significantly limit just how far an industry can go with improving efficient irrigation technologies in California, thus leaving potential water savings on the table. California needs a MWELo that embraces this innovation, not stifles it.

The Irrigation Association recommends the following language change on page 16:

(M) The irrigation system must be designed and installed ~~in such a manner that a precipitation rate of 1.0 inches per hour is not exceeded in any portion of the landscape~~ using irrigation emission devices that meet the requirements set in the ANSI standard, "Landscape Irrigation Sprinkler and Emitter Standard," ASABE/ICC 802-2014.

### **Irrigation Efficiency Requirement**

On page five of the MWELo draft, the "irrigation efficiency" requirements are now 0.85 for residential areas and 0.92 for non-residential areas. While the Irrigation Association believes in irrigation efficiency as a crucial component to water conservation, these levels stated in the draft are not achievable.

Using the explanation from the 2009 ETAF White Paper by DWR, Irrigation Management Efficiency (IME) is 0.90 and irrigation performance is based on  $DU_{lh}$ . The draft proposal calls for irrigation efficiency of 0.92.

$DU_{lh} = I.E.(0.90) / IME(0.92) = 1.02$ . Distribution uniformity exceeding 1.00 is not possible; therefore, the proposed irrigation efficiency of 0.92 for nonresidential properties is unrealistic.

For residential properties, the proposed irrigation efficiency of 0.85 would require a  $DU_{lh}$  of 0.94, which again is unrealistically high.

Similar to how placing a limit on precipitation rates hinders innovations in technology, so do these high numbers. The 0.85 irrigation efficiency requirement for residential landscapes all but eliminates any type of overhead irrigation. There are many instances where overhead irrigation is much more efficient than subsurface. The proposed 0.92 irrigation efficiency requires that an irrigation system be more than perfect in distribution uniformity. This is simply impossible to achieve.

The Irrigation Association recommends that the irrigation efficiency requirement be 0.75 as recommended in the American Society of Irrigation Consultants and Irrigation Association Landscape Irrigation Best Management Practices document released in May 2014 (<https://www.irrigation.org/landscapebmps/>). With a 0.75 IE, the  $DU_{lh}$  is 0.83. That represents a considerable jump from the 2010 version and pushes the industry to improving irrigation efficiency in a more realistic way.

### **Evapotranspiration Adjustment Factor**

On page four of the MWELO draft, the “ET adjustment factor” requirements are 0.5 for residential areas and 0.4 for non-residential areas. The Irrigation Association fully supports the concept of water budgeting ([https://www.irrigation.org/Policy/Determining\\_the\\_Water\\_Requirements\\_of\\_the\\_Irrigated\\_Landscape.aspx](https://www.irrigation.org/Policy/Determining_the_Water_Requirements_of_the_Irrigated_Landscape.aspx)), as a tool for landscape and irrigation design as well as management.

In the current MWELO, the ETAF is 0.7 for both residential and non-residential landscapes. While this took effect in September of 2009, the MWELO was not properly enforced in many areas throughout California and was never given a true chance to provide water savings through landscape designs set with a 0.7 ETAF and the use of the water budget to assure proper use of water resources.

Through conversations with various policymakers and legislators throughout California since the inception of the current MWELO, as well as the discussions within the current emergency order, the Irrigation Association’s staff and members noted that there is a fundamental disconnect of understanding when it comes to the ETAF, landscape plant material and potential water savings. Changing an ETAF for new landscape installations will not have an immediate effect on water savings.

When landscape and irrigation professionals use water budgets, it is primarily for management purposes. As the current MWELO is administered and the draft is written, the water budget is only considered when determining what plant material is allowed to be installed in the landscape (low/medium/high water use). Any water savings at this point are theoretical at best. First, during the establishment phase, more water is applied to ensure the new plant material survives in the new setting. Second, the property manager/owner does not have a requirement to stick to

the maximum applied water allowance during the maintenance of the plants. With so much focus placed on what kind of plants can be planted and not enough focus on management, significant savings are left behind.

The Irrigation Association believes that through irrigation water measurement, the MAWA should be an enforceable component of the MWELo. We recommend the following:

- Evapotranspiration adjustment factor should stay at 0.7 for residential and non-residential landscapes. The Irrigation Association supports keeping the special landscape areas ETAF at 1.0 and for existing landscapes at 0.80.
- Mandate that all landscapes that need to adhere to the MWELo install a landscape irrigation water meter or flow sensor that measures the amount of water applied to landscape plant material.
- Require regular reporting of the amount of water applied to the landscape through the irrigation system, to ensure the water used is consistent with the MAWA and the 0.7 ETAF.

These simple steps will achieve better results (water savings), while embracing innovative irrigation technologies and promoting long-lasting best management practices. Cities that have implemented the use of a model ordinance along with measuring water use and enforcing the ordinance have succeeded in reducing water applied to the landscape.

With the many diverse climates and ecoregions in California, 0.7 is a reasonable ETAF. Those regions that deal with a limited water supply have already selected a lower ETAF and many have responded; usually they are located in the more arid or desert climates of the state. Areas that have sufficient rainfall, likely have native plants that have a water demand that exceeds the plant factor being proposed in the draft ETAF. The ETAF should reflect local climate conditions.

### **Dedicated Landscape Water Meters**

The Irrigation Association fully supports the measurement of water applied to the landscape and the monitoring of water application is essential to complying with water budgets. 492.7 Irrigation Design Plan, Item (1) (A) calls for dedicated landscape water meters. This comment addresses option 2: a privately owned meter or submeter. We propose that flow sensors/flow meters be recognized as a privately owned meter or submeter as explained below. For clarity, additional definitions should be included in the model ordinance.

Definition: Water meter means an inline device installed at the supply point that measures the flow of water into the irrigation system and is connected to a totalizer to record water use.

Definition: Flow Sensor means an inline device installed at the supply point of the irrigation system that produces a repeatable signal proportional to flow rate. Flow sensors must be connected to an automatic irrigation controller, or flow monitor capable of receiving flow signals and operating master valves. This combination flow sensor/controller may also function as a landscape water meter or submeter.

The terms flow sensor and/or flow meter are used interchangeably in the landscape irrigation industry to describe an in-line device that produces a repeatable signal, proportional to the rate of liquid flow through a closed pipe system. When a flow sensor is located at the supply point of the irrigation piping system and is connected to a totalizer, flow monitor or to an automatic

irrigation controller with flow measuring capabilities, it may function as a landscape water meter or sub-meter.

### **Irrigation Audit**


The Irrigation Association supports the inclusion of the following language by DWR on page five, section (aa), “the audit must be conducted in a manner consistent with the Irrigation Association’s landscape irrigation auditor certification program.”

As defined in the IA’s certification candidate handbook (<http://www.irrigation.org/uploadedFiles/Certification/Certification%20Candidate%20Handbook.pdf>), a certified landscape irrigation auditor is involved in the quantification of landscape irrigation water use. Auditors collect site data, make maintenance recommendations and minor repairs, and perform field measurements and observations. Through this data gathering, a basic irrigation schedule can be developed that will assist a site water manager or property owner managing his overall irrigation water usage. The IA feels that the audit conducted on a landscape irrigation system, as outlined by the CLIA certification program, will ensure irrigation systems are maximizing their efficiency, leading to significant water savings.

Thank you, again, for all of your hard work. We enjoy working with you and the efficiency team at DWR and hope to continue our partnership for years to come.

If you have any questions regarding these comments, please contact IA’s Government and Public Affairs Director John Farner at [johnfarner@irrigation.org](mailto:johnfarner@irrigation.org) or IA’s Industry Development Director Brent Mecham, CID, CLWM, CIC, CAIS, at [brentmecham@irrigation.org](mailto:brentmecham@irrigation.org).

Sincerely,



Deborah M. Hamlin, CAE, FASAE  
Chief Executive Officer

cc: Aric J. Olson, CSSBB, CPIM, CSCP, CID, CAIS  
2014 – 2015 IA President